

ABSTRACT OF THE DISCLOSURE

The present invention provides for an improved stent design and stent delivery catheter assembly for repairing a main vessel and a side branch vessel forming a bifurcation.

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The present invention includes a trap door stent design, a stent delivery catheter assembly, an apparatus for crimping the stent and the method for crimping the stent onto the catheter assembly, and the method for delivering and implanting the stent in a bifurcated vessel. The stent is implanted at a bifurcation so that the proximal section and distal section are in the main vessel, and the central section covers at least a portion of the opening to the side branch vessel. A second stent can be implanted in the side branch vessel and abut the expanded central section to provide full coverage of the bifurcated area in the main vessel and the side branch vessel.